



Agilent 7697A Headspace Sampler

Safety Manual



Agilent Technologies

Notices

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Agilent Technologies, Inc.
2850 Centerville Road
Wilmington, DE 19808-1610 USA

安捷伦科技（上海）有限公司
上海市浦东新区外高桥保税区
英伦路 412 号
联系电话：(800) 820 3278

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Safety Notices

CAUTION

A CAUTION notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

WARNING

A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

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Important Safety Warnings

Before moving on, there are several important safety notices that you should always keep in mind when using the Agilent 7697A Headspace Sampler.

WARNING

When handling/using chemicals for preparation or use within the instrument, all applicable local and national laboratory safety practices must be followed. This would include, but is not limited to, correct use of Personal Protective Equipment (PPE), correct use of storage vials, and correct handling of chemicals, as defined in the laboratory's internal safety analysis and standard operating procedures. Failure to adhere to laboratory safety practices could lead to injury or death.

Many internal parts of the instrument carry dangerous voltages

If the instrument is connected to a power source, even if the power switch is off, potentially dangerous voltages exist on:

- The wiring between the instrument power cord and the AC power supply, the AC power supply itself, and the wiring from the AC power supply to the power switch.

With the power switch on, potentially dangerous voltages also exist on:

- All electronics boards in the instrument.
- The internal wires and cables connected to these boards.
- The wires for any heater (such as the oven).

WARNING

All these parts are shielded by covers. With the covers in place, it should be difficult to accidentally make contact with dangerous voltages. Unless specifically instructed to, never remove a cover unless the heated zones are turned off.

WARNING

If the power cord insulation is frayed or worn, the cord must be replaced. Contact your Agilent service representative.

Do not tamper with protective earth ground

WARNING

This is a Safety Class 1 Product (provided with a protective earthing ground, incorporated in the power cord). The mains plug shall only be inserted in a socket outlet provided with a protective earth contact. Any interruption of the protective conductor inside or outside of the instrument is likely to make the instrument dangerous. Intentional interruption is prohibited.

Do not use an Uninterruptable Power Supply (UPS) with a headspace sampler

If the area where the instrument is located suddenly loses power, an unsafe condition can result if the instrument remains powered on. Do not use the instrument with a UPS.

Electrostatic discharge is a threat to instrument electronics

The printed circuit (PC) boards in the instrument can be damaged by electrostatic discharge. Do not touch any of the boards unless it is absolutely necessary. If you must handle them, wear a grounded wrist strap and take other antistatic precautions. Wear a grounded wrist strap any time you must remove any instrument cover.

Many parts are dangerously hot

Many parts of the instrument operate at temperatures high enough to cause serious burns. These parts include but are not limited to:

- The oven carousel/tray and its contents
- The probe and heated blocks
- The six port valve and heated blocks

You should always cool these areas of the instrument to room temperature before working on them. The oven will cool faster if you first set its temperature to room temperature. Turn the zone off after it has reached the setpoint. If you must perform maintenance on hot parts, use a wrench and wear thermally protective gloves. Whenever possible, cool the part of the instrument that you will be maintaining before you begin working on it.

WARNING

Be careful when working behind the instrument. During cool-down cycles, the instrument emits hot exhaust which can cause burns.

Oven thermal leaks

WARNING

Objects passing through the oven lid seal can cause thermal leaks which create hazardous hot spots which cause burns and melt equipment.

Do not allow wiring or temperature probes to pass through the oven lid seal.

Never use a flammable gas for vial pressurization

Flammable gases, such as hydrogen and argon/methane, create a potential explosion hazard during vial pressurization and in venting. The Agilent 7697A Headspace Sampler cannot be configured to use a flammable gas for vial pressurization.

General gas safety

- Wear eye protection when using compressed gas to avoid eye injury.
- Fasten all compressed gas cylinders securely to an immovable structure or permanent wall.
- Store and handle compressed gases in accordance with relevant safety codes.
- Do not put gas cylinders in the path of a hot air vent (including a GC oven exhaust).

General warnings

- Perform periodic leak checks on supply lines, fittings, and pneumatic plumbing to prevent a potentially hazardous condition.
- To avoid a potential shock hazard when using liquid solution to locate leaks, turn the main power switch off and disconnect the main power cord. Be careful not to spill leak solution on electrical leads.

Use with chemicals

When handling/using chemicals for preparation or use within the instrument, follow all applicable local and national laboratory safety practices. This includes, but is not limited to, correct use of personal protective equipment (PPE), correct use of storage vials, and correct handling of chemicals, as defined in the laboratory's internal safety analysis and standard operating procedures. Failure to adhere to laboratory safety practices could lead to injury or death.

Hydrogen Safety

Hydrogen gas may be used as carrier gas. When mixed with air, hydrogen can form explosive mixtures.

WARNING

When using hydrogen (H₂) as the carrier gas, be aware that hydrogen gas can flow into the headspace instrument or GC oven and create an explosion hazard. Therefore, be sure that the hydrogen supply is turned off until all connections are made. When using H₂ carrier, make sure the sample loop is properly installed and that the transfer line is connected to the GC before supplying hydrogen gas to the instrument.

Hydrogen is flammable. Leaks, when confined in an enclosed space, may create a fire or explosion hazard. In any application using hydrogen, leak test all connections, lines, and valves before operating the instrument. Always turn off the hydrogen supply at its source before working on the instrument.

WARNING

Never use flammable gas for vial pressurization. Flammable gases, such as hydrogen and argon/methane, can create an explosion hazard when used for vial pressurization. The 7697A Headspace Sampler does not support use of flammable gases for vial pressurization.

Hydrogen is a commonly-used GC carrier gas. Hydrogen is potentially explosive and has other dangerous characteristics.

- Hydrogen is combustible over a wide range of concentrations. At atmospheric pressure, hydrogen is combustible at concentrations from 4% to 74.2% by volume.
- Hydrogen has the highest burning velocity of any gas.
- Hydrogen has a very low ignition energy.
- Hydrogen that is allowed to expand rapidly from high pressure into the atmosphere can self-ignite due to an electrostatic spark.
- Hydrogen burns with a nonluminous flame which can be invisible under bright light.

Hydrogen shutdown

Hydrogen gas may be used as a carrier gas. When mixed with air, hydrogen can form explosive mixtures.

If using headspace sampler carrier gas control, the instrument monitors the carrier gas stream. If the carrier gas stream shuts down because it is unable to reach its flow or pressure setpoint *and* if it is configured to use hydrogen, the instrument assumes that a leak has occurred and declares a *hydrogen safety shutdown*. The effects are:

- The display indicates the shutdown.
- The carrier gas flow is turned off.
- All heaters are turned off.
- All motors are turned off.
- An alarm tone sounds.

To recover from this state, fix the cause of the shutdown (tank valve closed, serious leak, and so forth). Then, turn the carrier gas flow **Off**, then **On** again.

WARNING

The headspace sampler cannot control the behavior of connected devices, such as a GC or MS. If a hydrogen safety shutdown occurs, check these other devices and shut down heated zones and motors as needed.

Dangers unique to GC and GC/MSD operation

Hydrogen presents a number of dangers. Some are general, others are unique to GC or GC/MS operation. Dangers include, but are not limited to:

- Combustion of leaking hydrogen.

Combustion due to rapid expansion of hydrogen from a high-pressure cylinder.

Accumulation of hydrogen in the GC oven and subsequent combustion (see your GC documentation and the label on the top edge of the GC oven door).

Accumulation of hydrogen in the MSD and subsequent combustion.

Measuring hydrogen gas flows

WARNING

Do not measure hydrogen together with air or oxygen. This can create explosive mixtures that may be accidentally ignited by automatic ignition.

Fuses and Batteries

The instrument requires fuses and batteries for proper operation. These must only be accessed by Agilent trained service personnel.

Table 1 AC board fuses

Fuse designation	Line voltage	Fuse rating and type
JF1, JF2	All	10 A, 250 VAC, IEC 127 type F (non-time delay), glass body

Table 2 Logic board battery

Battery designation	Battery rating and type
BT1	3-volt lithium-poly carbon battery, .048A-HR, Panasonic model BR 1225

WARNING

Disconnect product from mains supply before replacing any fuse.

WARNING

For continued protection against fire hazard, replace line fuses only with the same type and ratings. The use of other fuses is prohibited.

Safety and Regulatory Certifications

The Agilent 7697A Headspace Sampler conforms to the following safety standards:

- Canadian Standards Association (CSA): C22.2 No. 61010.1
- CSA/Nationally Recognized Test Laboratory (NRTL): UL 61010-1
- International Electrotechnical Commission (IEC): 61010-1, 60101-2-010, 60101-2-081
- EuroNorm (EN): 61010-1

The Agilent 7697A Headspace Sampler conforms to the following regulations on Electromagnetic Compatibility (EMC) and Radio Frequency Interference (RFI):

- CISPR 11/EN 55011: Group 1, Class A
- IEC/EN 61326
- AUS/NZ 

This ISM device complies with Canadian ICES-001. Cet appareil ISM est conforme à la norme NMB-001 du Canada.



The Agilent 7697A Headspace Sampler is designed and manufactured under a quality system registered to ISO 9001.

Indoor use only.



Instructions for Disposal of Waste Equipment by Users in the European Union. This symbol on the product or its packaging indicates that this product must not be disposed of with other waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please

contact your local city recycling office or the dealer from whom you originally purchased the product.

Information

The Agilent 7697A Headspace Sampler meets the following IEC (International Electrotechnical Commission) classifications: Safety Class I, Transient Overvoltage Category II, Pollution Degree 2.

This instrument has been designed and tested in accordance with IEC Publication 61010-1:2001 Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use and has been supplied in a safe condition. The instruction documentation contains information and warnings which must be followed by the user to ensure safe operation and to maintain the instrument in a safe condition. If the instrument is used in a manner not specified by the manufacturer, the protection provided by the instrument may be impaired. Whenever the safety protection of the Agilent 7697A Headspace Sampler has been compromised, disconnect the unit from all power sources and secure the unit against unintended operation.

Refer servicing to qualified service personnel. Substituting parts or performing any unauthorized modification to the instrument may result in a safety hazard.

Symbols

Warnings in the manual or on the instrument must be observed during all phases of operation, service, and repair of this instrument. Failure to comply with these precautions violates safety standards of design and the intended use of the instrument. Agilent Technologies assumes no liability for the customer's failure to comply with these requirements.

See accompanying instructions for more information.



Indicates a hot surface.



Indicates hazardous voltages.



1 Headspace Sampler Safety

Indicates earth (ground) terminal.



Indicates potential explosion hazard.



Indicates electrostatic discharge hazard.



Indicates a hazard. See the Agilent headspace sampler user documentation for the item labeled.



Indicates that you must not discard this electrical/electronic product in domestic household waste



Off



On



Electromagnetic compatibility

This device complies with the requirements of CISPR 11. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try one or more of the following measures:

- 1 Relocate the radio or antenna.
- 2 Move the device away from the radio or television.
- 3 Plug the device into a different electrical outlet, so that the device and the radio or television are on separate electrical circuits.
- 4 Make sure that all peripheral devices are also certified.

- 5 Make sure that appropriate cables are used to connect the device to peripheral equipment.
- 6 Consult your equipment dealer, Agilent Technologies, or an experienced technician for assistance.
- 7 Changes or modifications not expressly approved by Agilent Technologies could void the user's authority to operate the equipment.

Sound Emission Certification for Federal Republic of Germany

Sound pressure

Sound pressure $L_p < 70$ dB(A) according to DIN-EN 27779.

Schalldruckpegel

Schalldruckpegel $LP < 70$ dB(A) nach DIN-EN 27779.

Intended Use

Agilent products must only be used in the manner described in the Agilent product user guides. Any other use may result in damage to the product or personal injury. Agilent is not responsible for any damages caused, in whole or in part, by improper use of the products, unauthorized alterations, adjustments or modifications to the products, failure to comply with procedures in Agilent product user guides, or use of the products in violation of applicable laws, rules or regulations.

Cleaning

To clean the unit, disconnect the power and wipe down with a damp, lint-free cloth.

Recycling the Product



For recycling, contact your local Agilent sales office.

To locate the nearest Agilent sales office or service provider, visit the Agilent website at www.agilent.com. In North America, call toll free: 1-877-424-4536.



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